GLOBAL NEWS

WHO DIRECTOR WARNS ON MOBILE PHONES

Dr Gro Harlem Brundtland, the Director-General of the World Health Organization (WHO), favours a precautionary approach to the use of mobile phones and also discourages children from using them, according to an interview published in the Norwegian newspaper *Dagbladet Norge* on March 9.

Dr Brundtland, a former Prime Minister of Norway, is also a physician with a degree in public health. She said that, although she doesn't own a mobile phone, whenever she uses one she gets a headache that takes about half an hour to an hour to abate after the radiation exposure stops.

"It's not the sound, but the waves I react to. My hypersensitivity has gone so far that I even react to mobiles closer to me than about four metres," she said.

She also gets an "instant reaction" if she so much as touches a wireless phone. As for computers: "If I hold a laptop to read what's on the screen, it feels like I get an electric shock through my arms," she said.

[See also Don Maisch's article on mobile phones in Science News this issue. Ed.]

(Sources: Dagbladet Norge, March 9, 2002, http://www.dagbladet.no; Microwave News, vol. XXII, no. 2, March/April 2002, http://www.microwavenews.com)

TOXIC CHEMICALS EXPOSURE CAUSES BIRTH DEFECTS

Approximately half of all pregnancies in the United States result in prenatal or postnatal death or an otherwise less than healthy baby. And major developmental defects, such as neural tube and heart deformities, occur in approximately 120,000 of the four million babies born in the US each year.

So says a report released by the US National Research Council of the National Academy of Sciences Institute of Medicine in June 2000, but which has had little exposure in the public domain.

According to the report, exposure to toxic chemicals, both manufactured and natural, causes about three per cent of all developmental defects, and at least 25 per cent of defects might be the result of a combination of genetic and environmental factors.

The report advises that new discoveries in developmental biology and genetics should be used when scientists analyse chemicals for their potential to cause birth defects.

Furthermore it states that, given recent advances in understanding how the process of normal development occurs, methods can now be devised to determine how chemicals disrupt it in humans.

"Many manufactured chemicals, as well as chemicals that occur in nature, have not been adequately evaluated for developmental toxicity," said Elaine Faustman, chair of the committee that wrote the report and also Professor of Environmental Health and Director of the Institute for Risk Analysis and Risk Communication at the University of Washington, Seattle.

The committee emphasised that all stages of human development—from conception to puberty—should be examined in toxicity studies, since all developmental periods are potentially susceptible to toxic agents.

(Source: Report, "Scientific Frontiers in Developmental Toxicology and Risk Assessment", from the Committee on Life Sciences, Board on Environmental Studies and Toxicology, National Research Council, USA, available for US$47.20 via website http://www4.nationalacademies.org/news.nsf/isbn/0309070864?OpenDocument, or by phoning +1 [202] 334 3313)

US OMITTED FROM HUMAN RIGHTS REPORT COVERAGE

On its January 16 broadcast, ABC's World News Tonight aired this brief item about the annual report released that day by Human Rights Watch:

"The international human rights group Human Rights Watch has released its annual report, and it says that several countries are using the US-led war against terrorism as a justification to ignore human rights.

"Human Rights Watch says that Russia,

Egypt, Israel, China, Zimbabwe, Malaysia and Uzbekistan have all cracked down on domestic opponents in the name of terrorism."

That summary is close to what the group warned in the January 16 press release for its annual global survey:

"The anti-terror campaign led by the United States is inspiring opportunistic attacks on civil liberties around the world."

But one country singled out for criticism by Human Rights Watch was conspicuously absent from ABC's report: the United States, whose anti-terrorism measures were described in the group's press release as "threatening long-held human rights principles".

Among Bush administration actions that were identified as demonstrating a "troubling disregard for well-established human rights safeguards" were "new laws permitting the indefinite detention of non-citizens, special military commissions to try suspected terrorists, the detention of over 1,000 people, and the abrogation of the confidentiality of attorney-client communications for certain detainees".

While ABC ignored this criticism of the US in favour of pointing fingers at other countries, the HRW report actually drew a connection between the erosion of human rights standards in the US and overseas.

On January 17, the UK *Guardian* quoted HRW thus: "...dictators need do nothing more than photocopy measures introduced by the Bush administration, whose ability to criticise abuses in other countries was thus deeply compromised, said the New York–based Human Rights Watch in a devastating 660-page report."

(Source: Fairness & Accuracy in Reporting, January 18, 2002, http://www.fair.org)

DRUG COMPANIES CONTINUE TO INCREASE PROFITS

Pharmaceuticals again ranked as the most profitable sector in the United States in 2001, topping the annual *Fortune* 500 ranking of American corporations.

The pharmaceutical industry topped all three of *Fortune* magazine's measures of profitability for 2001, making this decade the third in which the industry has been at or near the top in all the magazine's measures of profitability.

Overall profits of *Fortune* 500 companies declined by 53 per cent in 2001, while the top 10 US drug makers increased profits by 32 per cent from US$28 billion to $37 billion, according to Public Citizen's analysis of the data. Together, the 10 drug companies on the list had the greatest return on revenues, reporting a profit of 18.5 cents for every dollar of sales—eight times higher than the median for all *Fortune* 500 industries, which was 2.2 cents.

The drugs industry says it needs extraordinary profits to fund risky research and development of new drugs and to absorb the high cost of drug failures in clinical trials. The industry's output of new drugs has risen only modestly in the past two decades, despite a more than sixfold increase, after adjustment for inflation, in spending on research and development to more than $30 billion a year. In the past few years, output has actually declined. Many industry supporters blame tougher scrutiny by the Food and Drug Administration.

The time spent to develop a drug, not counting the months consumed by government review, has lengthened from about nine years in the 1980s to more than 11 years, according to the Tufts Center for the Study of Drug Development, and the cost has more than doubled, after adjustment for inflation, to $800 million.

Public Citizen notes that the Tufts Center gets money from drug companies and maintains that the centre's figures are inflated to justify high drug costs.

(Sources: British Medical Journal, no. 324, May 4, 2002; Public Citizen report available at http://www.citizen.org)

EARTH'S MAGNETIC FIELD PRIMED FOR A FLIP?

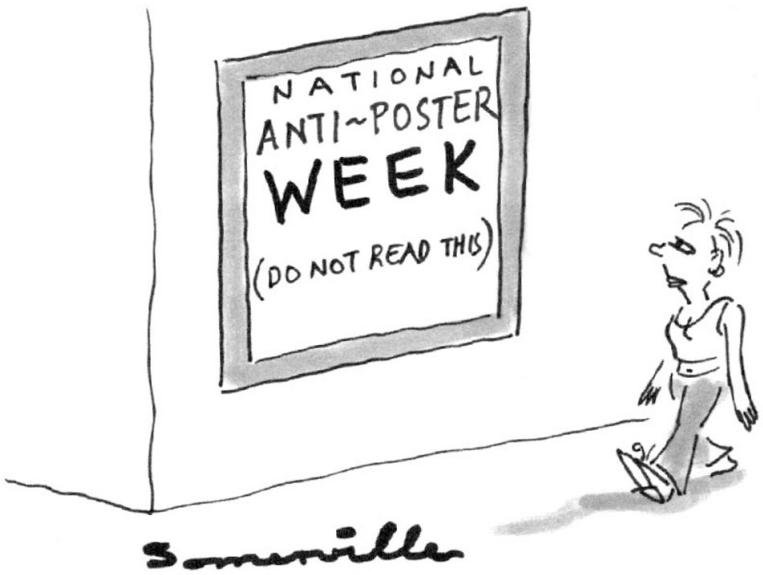
Earth's magnetic field could be gearing up for a flip, sending magnetic north to new digs in Antarctica, a study suggests.

Although such a reversal has never been recorded by humans, switches have occurred many times in Earth's past. Little is known about why this happens, but researchers have suspected for years that currents of molten iron circulating in Earth's outer core (creeping at about one metre per hour) set up the opposite magnetic poles at the antipodes. And computer models hint that vortices in the molten flow that swirl in a direction which weakens the magnetic field might begin the pole-flipping process.

Now, satellite observations have turned up evidence that these subterranean vortices do exist. By comparing the strength and orientation of the magnetic field measured by two satellites in 1980 and 2000, researchers at the Physics of the Globe Institute of Paris (IPGP) and the Danish Space Research Institute in Copenhagen were able to plot the currents of molten iron that create the magnetic dipole.

In an April 11 letter to *Nature*, the team describes large whorls off the southern tip of Africa and near the poles—areas where the magnetic field has already flipped.

(Source: American Association for the Advancement of Science, April 10, 2002, www.academicpress.com/inscight; also see Linda Moulton Howe's website, http://www.earthfiles.com)



WATER QUALITY AND FERTILITY THREATENED BY CHEMICALS

Prompted by studies in Europe, the US Geological Survey (USGS) conducted its own study in 1999–2000 on the prevalence of pharmaceutical drugs, hormones and other organic wastewater contaminants (OWCs) in water resources, and has recently published its results.

Using new analytical methods able to detect a total of 95 OWCs, the USGS took samples from a network of 139 streams across 30 states. It focused its attention on watercourses susceptible to contamination, e.g., downstream of intensive livestock production, industry and urbanisation.

In 80 per cent of streams sampled, the USGS found OWCs from agricultural, industrial and residential origins and uses, with 82 of the 95 testable OWCs being detected. There was a median of seven and as many as 38 OWCs in a given water sample.

The most frequently detected compounds were coprostanol (faecal steroid), cholesterol (plant and animal steroid), N,N-diethyltoluamid (insect repellant), caffeine (stimulant), triclosan (antimicrobial disinfectant), tri-(2-chlorethyl)-phosphate (fire retardant) and 4-nonylphenol (nonionic detergent metabolite). In 48 per cent of the streams there were antiobiotic residues—14 out of the 22 detectable human and veterinary antibiotics. Other compounds found included analgesics, antiasthmatics, antidepressants, codeine, cotinine (a nicotine by-product), dichlorobenzene, insecticides such as carbaryl, chlorpyrifos and dieldren, several phthalate plasticisers and a host of hormonal drugs and hormone-mimicking compounds.

Measured concentrations of OWCs rarely exceeded drinking-water health advisories or aquatic-life criteria—but many compounds do not have established guidelines, and wastewater treatment plants are not designed to remove OWCs from sewage.

These findings are also disturbing in view of new studies showing that average sperm counts in men from industrialised countries have dropped over the past 50 years from about 160 million per millilitre of semen to 66 million.

In the UK, the Medical Research Council reports that the fertility of Scottish men born since 1970 is 25 per cent less than those born in the 1950s, with sperm counts continuing to drop by two per cent a year.

Hormone-disrupting chemicals—including contraceptive residues, pesticides, PCBs and phthalates—are increasingly being seen as the culprits in impairing fertility and even in causing male fish in UK rivers to become feminised. One-third of Britain's drinking water comes from rivers, and most of it is taken from below sewerage works.

(Sources: USGS, http://toxics.usgs.gov/; Environmental Science & Technology, March 13, 2002, http://pubs.acs.org; Independent, London, March 17, 2002)

UK CRIME RATE RISES DESPITE CCTV SURVEILLANCE

With 1.5 million closed-circuit television systems watching its streets, office buildings, schools, shopping centres and roads, Britain is one of the most closely monitored nations on the planet, and the government is again spending the equivalent of US$115 million on more.

But instead of crime being reduced by these cameras, it is soaring across the country. In London, a city of eight million people, murder is going on at a record pace. Incidence of street robbery—the very crime that CCTV is supposed to be best at deterring—will reach the 50,000 mark this year.

A three-year study commissioned by the British government and conducted by the Scottish Centre for Criminology suggested that "spy" cameras had little or no effect on crime. It concluded that "reductions were noted in certain categories, but there was no evidence to suggest that the cameras had reduced crime overall".

"The cameras appeared to have little effect on clear-up rates for crimes and offences," the report said.

Jason Dittion, a criminologist and the study's main author, said the findings "have taken the stardust out of our eyes about this new technology".

However, experts are convinced that more advanced technology will make CCTV an even more valuable tool.

The British government is convinced that TV surveillance will remain a major anti-crime weapon, and recently announced that it is financing the installation of more than 200 additional closed-circuit monitoring systems in London as well as provincial cities and towns.

(Source: United Press International, March 8, 2002, http://www.upi.com)

CAN THE COMMON COLD VIRUS CURE CANCER?

Five years ago, Gary White had a 14-pound tumour in his gut and was given eight months to live. Now he's 49 and sailing and spending time with his kids—thanks, doctors say, to regular injections of a mild flu virus.

Dozens of dying men and women are now being deliberately infected with viruses as doctors determine if these microscopic bugs can kill the cancers without killing the patients. People desperate to beat their disease have volunteered to catch the flu, a cold or even a modified version of herpes.

Results from animal studies have been astounding. Injected with viruses, human tumours in mice have shrunk and vanished completely without harming the animals. And viruses have worked against not just one cancer but nearly every malignancy medicine knows, whether breast, lung, liver, colon, ovarian or even brain.

Researchers at the University of Calgary, Canada, have completed the first trial designed to test the safety of a reovirus—a bug common to the human gut and nasal passages. Last Christmas, nine cancer patients in Ottawa received infusions with the same virus. Eighteen patients with sarcomas (cancers of the bone and soft tissue) or breast, skin, head or neck cancer suffered no serious side effects over a 14-week trial. Some of their tumours even showed signs of shrinking, and one tumour disappeared completely.

The Alberta group is now conducting a Phase 2 trial, testing 45 prostate cancer patients and, in another experiment, testing patients with brain cancer.

"The results are encouraging, but this is a whole new area that we're exploring," said Dr John Bell, a senior scientist with Cancer Care Ontario, which is involved in the Ottawa trials. Still, he says, in the lab "there hasn't been a cancer that isn't vulnerable to a virus".

California's Onyx Pharmaceuticals Inc. and Stanford University are testing a genetically altered adenovirus—better known as a common cold bug—in patients with head, neck or liver cancer.

Harvard is running trials with a modified herpes virus, and lab research is underway on a weakened polio virus at Duke University and on measles at the Mayo Clinic.

"Tumour cells have already undergone genetic changes to become cancerous," said Dr Bell, who is also a professor of medicine at the University of Ottawa. "They have thrown out genes that inhibit their growth, but at the same time they've thrown out their antiviral programming."

Unlike bacteria that can multiply on a doorknob, a subway seat or a bowl of soup, viruses are parasites that depend on a host cell for their survival. But once a single virus particle busts through a cell wall, it can replicate from 1,000 to 10,000 times within two days.

(Source: The Globe and Mail, Canada, April 27, 2002, http://www.theglobeandmail.com)

EU'S NEW FOOD DIRECTIVE HAS GLOBAL IMPLICATIONS

The European Union food supplements directive was approved in its second reading in the EU Parliament on March 13, 2002, with only one proposed amendment: the extension of a time limit for submitting dossiers for the approval of vitamin and mineral sources not yet included in the directive's appendix (see http://www.laleva.cc/supplements/c5-0640-01_en.pdf). Vitamin and mineral sources found on the market, but not included in the directive's appendix, number about 300, mainly the more advanced mineral formulations (see http://www.laleva.cc/supplements/forgotten_substances.html).

Two aspects most likely to influence the supplements industry at this point are:

• **Dosages:** The directive mandates that maximum dosages shall be set after consultation by the European Scientific Committee for Foods (SCF). The actual decision, however, is left to administrative action by the European Commission, which is a kind of rudimentary government for the European Union. There is a large margin of discretion in this setting of dosage limits; article 5 of the directive states that dosages should be set with regard to safety, but after considering intake of vitamins from sources other than supplements (i.e., from food) and after taking due account of recommended daily intakes (RDI). So there is really no telling yet where the mood will swing on this; the rules can be interpreted in a variety of ways.

• **Ingredients:** The directive establishes lists of vitamin and mineral sources that may be utilised in the formulation of supplements. The first draft list, which is an annexe to the text of the directive, itemises the most ineffective forms (especially for minerals) from a viewpoint of bioavailability—forms which have for years been used in pharmaceutical drugs and in dietetic products. To add a vitamin or mineral source to the list, a scientific dossier needs to be submitted to the Scientific Committee for Foods. The SCF has laid down strict requirements, including toxicological assays, for these dossiers (see http://www.europa.eu.int/comm/food/fs/sc/scf/ out100_en.pdf).

But there is more to be considered. There are at least two legislative proposals already in the works at the EU which are likely to influence supplements negatively:

• The first one is a proposal for the medicinal registration of herbal products. This has been proposed by the EC and it appears to be an attempt to extend to the rest of Europe the restrictive German system, where all herbal products are registered medicines (but not restricted only to sale in pharmacies). European industry seems set to oppose this proposal. The time frame for approval is about two years, if it does advance as planned.

• The second legislative proposal is even more insidious. It is a general revision of the European medicines code, and one of the proposed changes is in the definition of what constitutes a medicinal product—which would seem to incorporate any substance that can be used for the purposes of staying or getting healthy, even if not presented in this way. It would also affirm a new principle: that a product can be considered medicinal if it fits the (very extensive) definition, even if it is already subject to other legislation. In other words, any health product that turns out to become serious competition to a pharmaceutical product could be picked out and reclassified as a medicine, practically without any possibility of legal recourse.

The recent and ongoing EU legislative changes in the field of supplements, herbs, foods and medicines will hit the supplements industry in its most vulnerable area, reducing the critically important capacity to innovate. If the legislative trend continues on its present course, innovation of natural and nutritional products will be extremely difficult, if not impossible, for smaller companies. The costs involved will slow innovation down to the pace of the biggest players, which have been notoriously reluctant to allow any changes in the status quo.

Another ominous development on the horizon is a UN-related Codex Alimentarius guideline very similar to the EU's directive on food supplements. This may, in time, become even more important than the EU directive, which affects commerce only inside the European Union. Use of World Trade Organization mechanisms to force a change in a country's vitamin laws cannot be ruled out.

(Source: from Josef Hasslberger, March 14, 2002, http://www.hasslberger.com; see also http://www.lavela.cc, Health Sciences Institute, http://www.hsibaltimore.com, and Health Confidential, May 2002, http://www.healthchoice.org.uk)